



INSPECTOR GENERAL  
DEPARTMENT OF DEFENSE  
400 ARMY NAVY DRIVE  
ARLINGTON, VIRGINIA 22202-2884



REPORT  
NO. 91-110

July 3, 1991

MEMORANDUM FOR DIRECTOR, DEFENSE COMMUNICATIONS AGENCY

SUBJECT: Final Quick-Reaction Report on the Reconfiguration of  
Automatic Voice Network Access Circuits - Kansas City  
Area (Project No. ORD-0043.04)

Introduction

This final quick-reaction report is on a segment of our Audit of Telecommunications Circuit Allocation Programs - Kansas City Area. The objectives of this segment of the audit were to determine if existing leased telecommunications services were discontinued when no longer required and if the most cost-effective circuit configurations were used.

Less costly reconfiguration opportunities existed, but were not effectively identified or implemented for 109 Command Communications Service Designators (CCSD's) issued for leased Automatic Voice Network (AUTOVON) access circuits at seven DoD activities in the Kansas City area. The CCSD's are issued by the Defense Communications Agency (DCA) to identify single and multichannel special-purpose circuits of the Defense Communications System. The 109 CCSD's cost the DoD \$314,880 annually. We found that 41 (37.6 percent) of the 109 AUTOVON access circuits reviewed were potentially not cost-effective in their current configurations. In the Kansas City area, the DCA neither identified reconfiguration opportunities nor coordinated implementation of reconfiguration solutions when two or more DoD Components were involved. We estimated that the 41 reconfiguration candidate circuits needlessly cost DoD about \$656,000 over the last 6 years. The DCA needs to reconfigure these circuits to avoid paying further unnecessary monthly recurring charges. If a prompt reconfiguration solution is implemented, the DoD could realize savings of \$658,000 during execution of the FY 1992 through FY 1997 Future Years Defense Program.

Scope of Audit

The Audit of Telecommunications Circuit Allocation Programs - Kansas City Area (Project No. ORD-0043.02) was performed as a part of our ongoing Audit of Telecommunications Circuit Allocation Programs (Project No. ORD-0043). The overall objective of the audit is to determine if DoD circuit allocation

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programs identify and use the most effective configuration for leased long-haul, special-purpose telecommunications circuits.

This segment of the audit involved reviews at various DoD and non-DoD activities in the Kansas City, Missouri, metropolitan area and Fort Leavenworth, Kansas. Our audit universe in the Kansas City area contained 414 CCSD's issued by the DCA. We extracted the universe from the DCA's World-Wide On-Line System and the Defense Commercial Communications Office (DECCO) data bases. The cut-off date was July 28, 1990. From our universe, we selected a random statistical sample of 203 CCSD's for evaluation during the audit. All 109 CCSD's discussed in this report were part of this Kansas City area sample. Enclosure 1 provides a detailed list of CCSD's and the originating locations of circuits considered in our reconfiguration proposals.

This economy and efficiency audit was made from September 1990 through May 1991. The audit was made in accordance with auditing standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD, and accordingly, included such tests of internal controls as were considered necessary.

### Internal Controls

The internal control program as it applies to circuit allocation programs is the responsibility of the communications commands within the Military Departments, Defense agencies, and the DCA. We made a preliminary evaluation of the applicable internal controls at the DoD activities within the Kansas City area. Because the responsibility for internal controls for circuit allocation programs is not vested with the installation or activity communications management function, internal controls will be addressed in our overall report.

### Discussion

We identified seven military activities in the Kansas City area that independently maintained access to the AUTOVON system through leased special-purpose circuits connected to the AUTOVON switch located at Fairview, Kansas. Of the 109 CCSD's we reviewed, 68 involved 2 multiplexed T1 links and 66 associated occupied channels. One multiplexed M44 T1 link, with 44 occupied channels, connected Fort Leavenworth to the switch at Fairview; the second T1 link, with 22 occupied and 2 vacant channels, connected the Marine Corps Finance Center, Kansas City, to the Fairview switch. Definitions and reconfiguration techniques involving T1 and M44 T1 links are discussed in Enclosure 2. The

remaining 41 CCSD's involved single-channel circuits. The 109 CCSD's audited were used by the Army (65), Navy (23), Air Force (20), and the Defense Logistics Agency (1).

Actions to install the existing T1 links were initiated by communication managers of the U.S. Army Commercial Communications Office (USARCCO) and the DCA. These actions are commendable and, on an annual basis, may have saved DoD several hundred thousand dollars. However, no action has been taken to reconfigure the remaining 41 circuits. In our view, only the DCA is in a position to identify and coordinate reconfiguration actions that involve two or more DoD Components. The AUTOVON connections in the Kansas City area involve four DoD Components, yet we found no indications that the DCA identified or coordinated actions necessary to ensure the most cost-effective configuration for the entire area.

Available guidance concerning reconfigurations is not definitive. In March 1973, the responsibility of centralized management and engineering for all long-haul multiplexing was assigned to the Director, DCA, by the Deputy Secretary of Defense, and was later incorporated in DoD Directive 5105.19, "Defense Communications Agency (DCA)," dated August 10, 1978. However, that Directive has since been revised, and the current Directive, dated December 12, 1988, does not clearly define the responsibility for multiplexing within the DoD. This condition will be addressed in our overall report on the Audit of Telecommunications Circuit Allocation Programs.

### Results of Audit

The present configurations of circuits for 41 of the 109 CCSD's reviewed in the Kansas City area are uneconomical and resulted in an estimated \$656,000 in unnecessary costs during the last 6 years. Also, other less costly alternatives were not explored or implemented. Using reconfiguration techniques in general use by the DoD and the telecommunications industry, we performed a detailed cost analysis considering all 109 CCSD's in the 7 locations, developed 43 alternatives as potential reconfiguration options, and calculated the associated potential cost savings. Of the 43 alternatives, 42 could result in recurring cost savings of \$4,000 to \$108,000 a year. If adopted, one alternative we prefer could save the DoD approximately \$658,000 in the Future Years Defense Program.

Reconfiguration Analysis. We identified potential reductions in costs and developed potential reconfiguration options using three approaches: first, we decreased the

collective total mileage charges incurred in meeting AUTOVON requirements in the Kansas City area by rerouting the single-channel access circuits to a single point and by subsequently establishing a T1 link; second, we replaced single-channel access circuits (at locations with six or more circuits) with a T1 link without rerouting the circuits; and third, we used a combination of the two previous approaches.

To illustrate, we explored 8 reconfiguration options for 21 circuits at Fort Leavenworth, Kansas (10 circuits); Atchison Army Ammunition Plant, Atchison, Kansas (1 circuit); Sunflower Army Ammunition Plant, De Soto, Kansas (4 circuits); and Rosecrans Memorial Airport, Air Guard Station, St. Joseph, Missouri (6 circuits). We determined that the most potentially cost-effective reconfigurations of the 21 circuits in these 4 locations would be as follows: reroute 1 circuit from Atchison Army Ammunition Plant and 4 circuits from Sunflower Army Ammunition Plant to Fort Leavenworth; multiplex these 5 circuits with 10 single-channel circuits originating from Fort Leavenworth onto a single T1 link to access the AUTOVON switch at Fairview; and multiplex the 6 remaining circuits from Rosecrans Memorial Airport onto a single T1 link without rerouting.

We considered combining other location groupings within the Kansas City area. One grouping included the Marine Corps Finance Center, Kansas City, Missouri; Richards Gebaur Air Reserve Station, Belton, Missouri; Lake City Army Ammunition Plant, Independence, Missouri; and the Sunflower Army Ammunition Plant. Another grouping included Richards Gebaur Air Reserve Station, Lake City Army Ammunition Plant, and the Sunflower Army Ammunition Plant. Finally, we considered combinations of location groupings for the entire Kansas City area. As a result, we determined that the most potentially cost-effective approach for the Kansas City area as a whole would include the T1 link from Fort Leavenworth, as discussed in the previous paragraph, and single T1 links each from Rosecrans Memorial Airport, Lake City Army Ammunition Plant, and Richards Gebaur Air Reserve Station. Implementation of this proposal could save DoD approximately \$108,000 annually in leased communication costs. Enclosure 2 provides the details.

Reconfiguration Data. In developing our reconfiguration proposals, we considered several factors and contacted Army, Navy, and Air Force communications managers and DCA management officials at DECCO and the Telecommunications Management and Services Office. We contacted DECCO personnel to obtain price quotes on the recurring leased mileage costs, the nonrecurring installation charges, and termination liabilities for the leased

circuits. We obtained and compared quotes for leasing the circuits through direct vendor lease, from the Federal Telephone System 2000, and through use of the Defense Commercial Telecommunications Network tariff.

Further, because both digital and analog private-branch-exchanges (PBX) were in use in the Kansas City area during our audit, it was necessary to identify the unique equipment requirements associated with each PBX. We attempted to identify the types and costs of equipment and maintenance needed to effect each PBX and reconfiguration option. We made numerous calls to communications managers at the above organizations to obtain a complete list of needed equipment, the cost of the equipment, the cost of maintenance contracts, or the confirmation of whether a maintenance contract existed on the equipment installed for the T1 links. Our efforts were unsuccessful; therefore, we estimated the costs to purchase (or lease) and install equipment for our proposed reconfiguration options.

Based on audit results to date, our computation of \$658,000 in potential monetary benefits is predicated on the adoption of the reconfiguration proposals shown in Enclosure 2. Communications managers at the DCA may be able to identify more viable technical and cost-effective solutions than our proposed options. This could affect the potential benefits identified in this report. Also, when true costs to buy (or lease) and install equipment needed to reconfigure circuits become known, the potential monetary benefits may require further adjustment. A projection of potential monetary benefits for FY 1992 through FY 1997 is shown in Enclosure 3. Actions to reconfigure circuits using such techniques as multiplexing are in accord with the Defense Management Report Decision No. 968 approved by the Deputy Secretary of Defense.

#### Recommendation for Corrective Action

We recommend that the Director, Defense Communications Agency, initiate immediate action to reconfigure the 41 Army, Air Force, and Defense Logistics Agency Automatic Voice Network circuits that are listed in Enclosure 1.

#### Management Comments

The DCA concurred in part to reconfigure the 41 AUTOVON circuits identified in the report. While recognizing that savings can be realized, DCA stated that immediate reconfiguration would duplicate efforts already completed as part of an AUTOVON/Defense Commercial Telecommunications Network



(DCTN) merger. The DCA maintained that the overall cost reduction from that merger on a DoD-wide basis will yield greater savings than can be achieved on a site-by-site basis. In its response, the DCA provided the data concerning the AUTOVON/DCTN cut-over dates, the number of circuits involved, and the locations in the Kansas City area where reconfigurations will be made. The rationale for DCA's reluctance to take immediate action was based on the lead time of 90 to 120 days to reconfigure the circuits and the contention that the payback period for the nonrecurring costs would result in only a 3-month savings before the AUTOVON/DCTN merger would take effect. Given the amount of resources available to the DCA and Military Departments, the pursuit of the AUTOVON/DCTN merger would result in greater anticipated savings.

The DCA obtained comments from the Army and Air Force and incorporated those comments in its response. Comments attributed to the Army indicated that savings could be achieved through bundling (establishing multichannel circuits). The Army made a comprehensive analysis of cost savings for our reconfiguration proposal, but did not show the source of its cost data. No alternative proposals were identified. In contrast, comments attributed to the Air Force did not include a cost analysis for the reconfiguration proposals and did not identify an alternative proposal; however, the Air Force "agrees that there are opportunities for bundling and these opportunities are already being implemented." The Air Force expressed concerns about single homing (routing) of Defense Switched Network (DSN) access lines, but stated that bundling opportunities will start in the fourth quarter of FY 1991, with a target for completion in the second quarter of FY 1993. Further, DCA stated that continued emphasis is being placed on reducing costs as early as possible and whenever possible while meeting mission needs. The DCA also discussed other initiatives planned or under way to achieve less costly telecommunications services.

The DCA concluded by commenting that site-by-site analyses of circuits and their associated costs were duplicative of larger ongoing efforts and implied that better use could be made of our audit resources. The DCA requested audit assistance in internal control issues confronting that organization. The complete text of the DCA response is contained in Enclosure 4.

#### Audit Response to Management Comments

Although the DCA concurred in part with our recommendation to take immediate action for reconfiguration, its comments are unresponsive. The response overlooks the thrust of this

quick-reaction report. An estimated \$656,000 was needlessly spent over the last 6 years. An opportunity exists, if seized immediately, to reduce DoD telecommunications expenditures by almost \$658,000 over the next 6 years. In summary, these immediate and long-term cost reductions could lower the DoD budget or free scarce resources for other pressing needs. The Army, Air Force, and the DCA acknowledge that the report provides a vehicle for achieving savings now. Yet, the DCA, despite its admirable commitment to reducing costs in the AUTOVON/DCTN merger, has decided to wait -- in some cases until October 1992 -- before initiating action to cut costs. While we recognize that resources are needed and that there are a number of tasks that must be performed under such a merger, we view the continued unnecessary expenditure of funds as unacceptable, not in the best interests of the Army and the Air Force, and contrary to the stated objectives of the DoD.

The Army's analysis of the cost of our reconfiguration proposals fully supports our report. The Army's estimate for reconfiguration of its 21 circuits in the Kansas City area differed in annual recurring savings from our reported savings by only \$367. There were greater differences in the nonrecurring costs. The Army determined the amortization period for the nonrecurring costs to be 8.3 months for the Lake City Army Ammunition Plant reconfiguration proposal; and 9.8 months for the Fort Leavenworth, Atchison Army Ammunition Plant, and Sunflower Army Ammunition Plant proposal. We determined the amortization period to be 15.4 and 5.1 months, respectively. The Army's analysis validates our finding and reaffirms the need for prompt action.

On the other hand, it appears that neither the DCA nor the Air Force fully comprehended our reconfiguration proposals. As stated in our report, we used a combination of three approaches to develop our reconfiguration solutions. We did not propose a single homing of all DSN access lines in the region. We did propose the establishment of a new T1 link from each of the Air Force locations, and a new T1 link from each of the Army locations. The Air Force concerns about single homing of DSN access lines are unfounded. Concerns over a single homing of access lines would have validity if Air Force users had critical mission requirements. Using DCA data, we identified all 20 Air Force circuits, as having a routine (the lowest) restoration priority, and only a single circuit as having an AUTOVON Military Precedence Designator higher than ROUTINE. These data indicate that the Air Force has recognized that a critical mission requirement does not exist for those circuits. Finally, in our opinion, the Air Force position, as expressed by the DCA, is

contradictory. Although no analysis was prepared of our reconfiguration proposals, the Air Force disagreed with our solutions, yet stated that there were opportunities for bundling. The Air Force included no details on the opportunities for bundling. The Air Force expressed concerns about single homing of DSN access lines, yet stated that bundling opportunities were already being implemented. The Air Force does not explain why it will take about 18 months (from the fourth quarter of FY 1991 to the second quarter of FY 1993) to install two T1 links or why the dates it cites do not agree with the planned dates for the AUTOVON/DCTN merger as stated by the DCA. We are now concerned that duplicate bundling efforts may be planned or are taking place, although neither DCA nor Air Force communications managers informed us of an Air Force bundling initiative in the Kansas City area. Contrary to our request, neither the DCA nor Air Force communications managers provided us an evaluation of the technical feasibility and associated net cost savings for the circuits covered by our recommendation.

Regarding the best use of audit resources, it should be noted that internal audits are designed to bring methods to improve the economy and efficiency of operations to management's attention. A quick-reaction report is designed, in part, to call management's attention to matters warranting prompt action to reduce costs. We believe our audit resources are well applied, and our reports provide numerous possibilities for immediate and long-term savings. The DCA may be assured of our willingness to assist them in an internal control review or in any other operational matter. However, we maintain that an opportunity to reduce costs now may be lost unless actions to reconfigure the circuits identified in this report are promptly taken. Accordingly, we request that the Director, DCA, reconsider his position in response to this final report.

DoD Directive 7650.3 requires that all audit recommendations be resolved promptly. Therefore, the Director, Defense Communications Agency, must provide final comments on the recommendation and monetary benefits within 15 days of the date of this report.

To be considered responsive, your comments should include the detailed results of your determinations of the technical feasibility and associated net cost savings for the circuits covered by the recommendation. The comments should include copies of Requests for Service that result in reconfiguring, rerouting, or disconnecting service associated with the 41 circuits. Also, you must state concurrence or nonconcurrence with the estimated monetary benefits of \$658,000 identified in



Enclosure 5. If you nonconcur with the estimated monetary benefits or any part thereof, you must state the amount you nonconcur with and the basis for your nonconcurrence. Recommendations and potential monetary benefits are subject to resolution in accordance with DoD Directive 7650.3 in the event of nonconcurrence or failure to comment.

If you have any questions concerning this audit, please contact Mr. John A. Gannon at (703) 693-0113 (DSN 223-0113) or Mr. Robert M. Murrell at (703) 693-0122 (DSN 223-0122). Activities visited or contacted are listed in Enclosure 6. Audit team members are listed in Enclosure 7. Copies of this report are being distributed to the activities listed in Enclosure 8. The courtesies and cooperation extended to the audit staff are appreciated.



Edward R. Jones  
Deputy Assistant Inspector General  
for Auditing

cc:

Secretary of the Army

Secretary of the Navy

Secretary of the Air Force

Assistant Secretary of Defense (Command, Control, Communications  
and Intelligence)

Director, Defense Logistics Agency

Office of the Inspector General, DoD

AUDIT REPORT NO. 91-110  
(Project No. ORD-0043.04)

July 3, 1991

RECONFIGURATION OF AUTOMATIC VOICE NETWORK  
ACCESS CIRCUITS - KANSAS CITY AREA

EXECUTIVE SUMMARY

**Introduction.** This quick-reaction report is on a segment of our ongoing Audit of Telecommunications Circuit Allocation Programs (Project No. ORD-0043). This segment of the audit involved reviews at various DoD and non-DoD activities in the Kansas City, Missouri, metropolitan area and Fort Leavenworth, Kansas.

We identified seven military activities in the Kansas City area that independently maintained access to the Automatic Voice Network (AUTOVON) system through 109 leased special-purpose circuits connected to the AUTOVON switch at Fairview, Kansas. The circuits are identified by Command Communications Service Designators (CCSD's). Of the 109 circuits audited, 65 were used by the Army, 23 by the Navy, 20 by the Air Force, and 1 by the Defense Logistics Agency and cost the DoD \$314,000 annually.

**Objectives.** The objectives of this segment of the audit were to determine if existing leased telecommunications services are discontinued when no longer required and if the most cost-effective circuit configurations were used.

**Audit Results.** In the Kansas City area, the Defense Communications Agency (DCA) neither identified reconfiguration opportunities nor coordinated implementation of reconfiguration solutions when two or more DoD Components were involved. In our view, only the DCA is in a position to identify and coordinate reconfiguration actions that involve two or more DoD Components. The leased AUTOVON connections in the Kansas City area involve four DoD Components, yet we found no indications that the DCA identified or coordinated actions necessary to ensure the most cost-effective configuration for the entire area.

Less costly reconfiguration opportunities existed, but were not effectively identified or implemented for the 109 CCSD's. We found that 41 (37.6 percent) of the 109 CCSD's reviewed were potentially not cost-effective in their current configurations. The present configurations of the 41 CCSD's cost the DoD an estimated \$656,000 in needless expense during the last 6 years. If immediate reconfiguration solutions are implemented, the DoD could realize savings of \$658,000 during execution of the FY 1992 through FY 1997 Future Years Defense Program.

**Internal Controls.** The internal control program as it applies to circuit allocation programs is the responsibility of the communications commands within the Military Departments, Defense agencies, and the DCA. Because the responsibility for internal controls for circuit allocation programs is not vested with the installation or activity communications management function, internal controls will be addressed in our overall report.

**Potential Benefits of Audit.** Using reconfiguration techniques generally employed by the DoD and the telecommunications industry, we considered 43 alternatives that involved all 109 CCSD's, and if immediately adopted, one alternative would yield aggregate savings to the DoD of approximately \$658,000 for the Future Years Defense Program.

**Summary of Recommendations.** We recommended that the Director, Defense Communications Agency, initiate immediate action to reconfigure the 41 Army, Air Force, and Defense Logistics Agency AUTOVON circuits.

**Management Comments.** The DCA concurred in part with our recommendation. Although the DCA recognized that savings can be realized, it stated that immediate reconfiguration would duplicate efforts already completed under the AUTOVON/Defense Commercial Telecommunications Network (DCTN) merger. Comments attributed to the Army and the Air Force indicated that savings could be achieved through bundling (establishing multichannel circuits). The DCA concluded that site-by-site analyses of circuits and their associated costs were duplicative of larger ongoing efforts. Management comments are discussed in detail on page 5 of this report, and a complete text of the comments is in Enclosure 4.

**Audit Response.** Although the DCA concurred in part with our recommendations to take immediate action to reconfigure circuits, its comments are unresponsive. The response completely overlooks the thrust of this quick-reaction report. An opportunity exists, if seized immediately, to reduce DoD telecommunications expenditures by almost \$658,000 over the next 6 years. The Army, Air Force, and the DCA acknowledge that the report provides a vehicle for achieving savings now. Yet, the DCA chooses to wait -- in some cases up to 15 months from the date of issuance of the draft report -- before initiating action to cut costs. Although we recognize that resources are needed and that there are a number of tasks to be performed under the AUTOVON/DCTN merger, we view the continued unnecessary expenditures as unacceptable, not in the best interests of the Army and the Air Force, and contrary to the stated objectives of the DoD.

We maintain that an opportunity to reduce costs exists now and may be lost unless actions to reconfigure the circuits identified in this report are promptly taken. Accordingly, we requested that the Director, DCA, reconsider his position in response to the final report.

COMMAND COMMUNICATIONS SERVICE DESIGNATORS FOR  
AUTOMATIC VOICE NETWORK CIRCUITS PROPOSED FOR RECONFIGURATION  
KANSAS CITY AREA

<u>Army</u>	<u>Air Force</u>	<u>Defense Logistics Agency</u>
UUBB LB9N <u>1/</u>	JUBB LB18 <u>5/</u>	NUBB LBAF <u>7/</u>
UUBB LC8K <u>1/</u>	JUBB LCH2 <u>5/</u>	
UUBB LC8L <u>1/</u>	JUBB LCK7 <u>5/</u>	
UUBB LC8M <u>1/</u>	JUBB LKSZ <u>5/</u>	
UUBB LC8N <u>1/</u>	JUBB LKTA <u>5/</u>	
UUBB LE8R <u>1/</u>	JUBB LKTB <u>5/</u>	
UUBB LE8U <u>1/</u>	JUBB LKTF <u>5/</u>	
UUBB LKUD <u>1/</u>	JUBB LKTJ <u>5/</u>	
UUBB LKUE <u>1/</u>	JUBB LKTK <u>5/</u>	
UZGB LLBZ <u>1/</u>	JUBB LKTL <u>5/</u>	
UUBB 7CQL <u>2/</u>	JUBB LKTN <u>5/</u>	
UUBB 2E19 <u>3/</u>	JUBB LKTT <u>5/</u>	
UUBB 3K52 <u>3/</u>	JUBB LKTU <u>5/</u>	
UUBB 3K53 <u>3/</u>	JUBB LKTW <u>5/</u>	
UUBB LBVL <u>3/</u>	JUBB 7DBF <u>6/</u>	
UUBB LFR4 <u>3/</u>	JUBB LENA <u>6/</u>	
UUBB 4C78 <u>4/</u>	JUBB LENB <u>6/</u>	
UUBB 4C94 <u>4/</u>	JUBB LENC <u>6/</u>	
UUBB LFR0 <u>4/</u>	JUBB LG1D <u>6/</u>	
UUBB LRMQ <u>4/</u>	JUBB LRZE <u>6/</u>	

Originating Locations \*

Army

- 1/ Fort Leavenworth, Kansas
- 2/ Atchison Army Ammunition Plant, Atchison, Kansas
- 3/ Lake City Army Ammunition Plant, Independence, Missouri
- 4/ Sunflower Army Ammunition Plant, De Soto, Kansas

Air Force

- 5/ Richards Gebaur Air Reserve Station, Belton, Missouri
- 6/ Rosecrans Memorial Airport, Air Guard Station,  
St. Joseph, Missouri

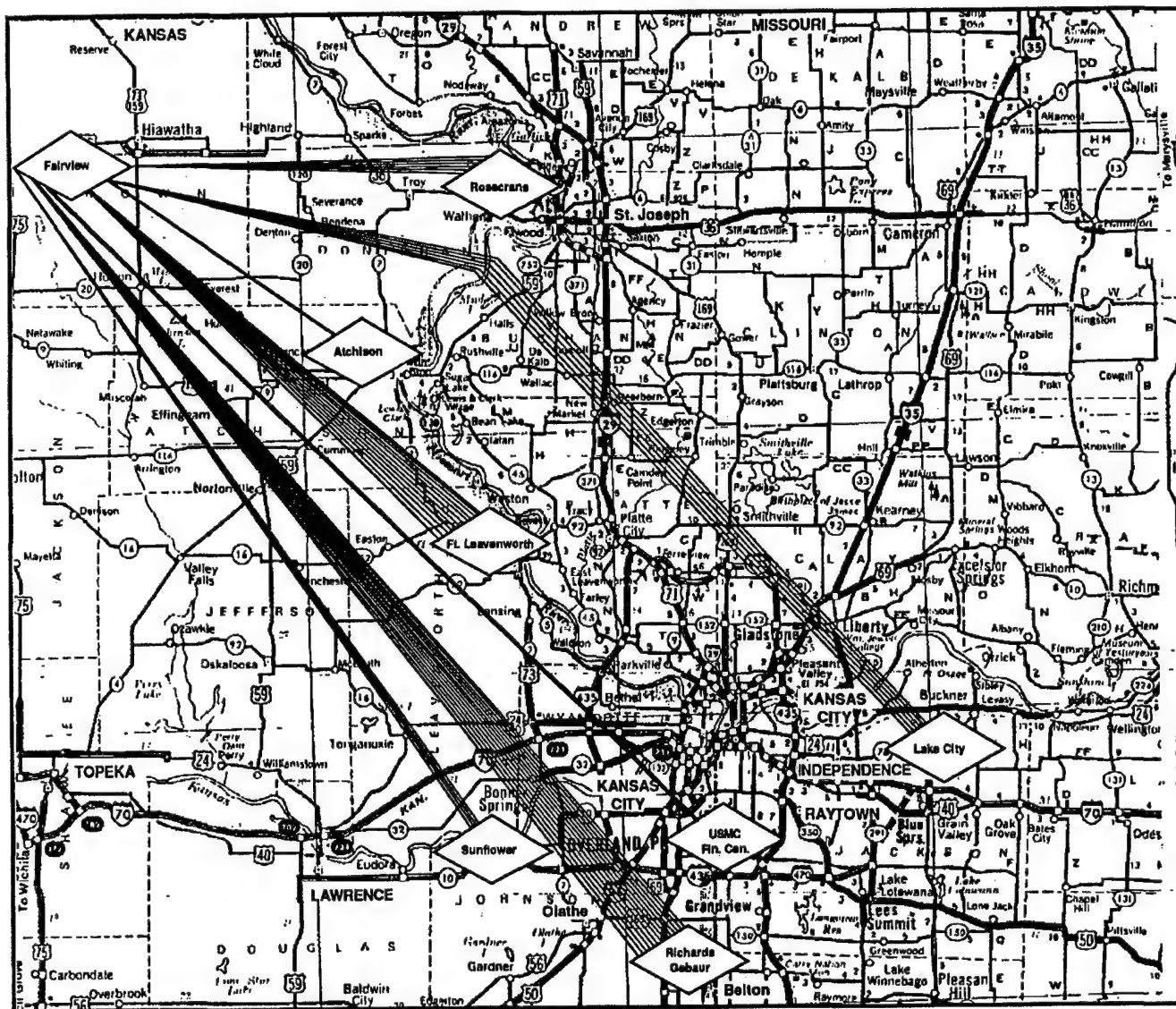
Defense Logistics Agency

- 7/ Lake City Army Ammunition Plant, Independence, Missouri

\* The originating locations are shown on the map on page 2 of this Enclosure.

COMMAND COMMUNICATIONS SERVICE DESIGNATORS FOR  
AUTOMATIC VOICE NETWORK CIRCUITS PROPOSED FOR RECONFIGURATION  
KANSAS CITY AREA (cont'd)

(Current Configuration)



NOTE: Circuit connections are routed between activities designated within diamonds.



RECONFIGURATION OF AUTOMATIC VOICE NETWORK  
SINGLE-CHANNEL ACCESS CIRCUITS  
KANSAS CITY AREA

Proposed Reconfiguration:\*

- Reroute one circuit from the Atchison Army Ammunition Plant, Atchison, Kansas; and four circuits from Sunflower Army Ammunition Plant, De Soto, Kansas; to Fort Leavenworth, Kansas. Multiplex 1/ these 5 single-channel circuits and the 10 single-channel circuits originating from Fort Leavenworth onto a single T1 link. 2/

- Establish a T1 link from Rosecrans Memorial Airport, Air Guard Station, St. Joseph, Missouri, to accommodate six single-channel circuits.

- Establish a T1 link from Lake City Army Ammunition Plant, Independence, Missouri, to accommodate six single-channel circuits.

- Establish a T1 link from Richards Gebaur Air Reserve Station (ARS), Belton, Missouri, to accommodate 14 single-channel circuits.

Under this proposal, all 41 single-channel Automatic Voice Network (AUTOVON) access circuits in the Kansas City area would be multiplexed or rerouted and multiplexed onto T1 links that would provide access to the AUTOVON switch located at Fairview, Kansas. The potential recurring annual savings are \$107,616; the first-year nonrecurring costs are \$47,511; and the payback period on the nonrecurring costs is less than 6 months.

\* Footnotes are shown on page 3 of this Enclosure, and the routing of the reconfigured circuits is shown on the map on page 4 of this Enclosure.

RECONFIGURATION OF AUTOMATIC VOICE NETWORK  
SINGLE-CHANNEL ACCESS CIRCUITS  
KANSAS CITY AREA (cont'd)

Current Configuration: 3/ \*

Location	Cost		Annual
	Circuits	Monthly	
Atchison Army Ammunition Plant	1	\$ 770	\$ 9,240
Fort Leavenworth	10	5,075	60,900
Lake City Army Ammunition Plant	6	2,920	35,040
Richards Gebaur ARS	14	6,783	81,396
Rosecrans Memorial Airport	6	2,416	28,992
Sunflower Army Ammunition Plant	4	1,960	23,520
Total	41	\$19,924	\$239,088

Less Leased Cost of  
Reconfigured T1 Links:

Install T1 service to Fairview from:			
Fort Leavenworth	15	2,197	26,364
Rosecrans Memorial Airport	6	1,668	20,016
Lake City Army Ammunition Plant	6	2,226	26,712
Richards Gebaur ARS	14	2,487	29,844
Total	41	8,578	(102,936)

Less Leased Cost of  
Rerouted Single-Channel Circuits:

Atchison Army Ammunition Plant	1	590	7,080
Sunflower Army Ammunition Plant	4	1,788	21,456
Total		<u>\$ 2,378</u>	<u>(\$ 28,536) 4/</u>

Annual Recurring Savings	\$ 8,968	\$107,616
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Less Nonrecurring Costs of  
Reconfiguration:

Circuit Installation Charges	\$ 15,715
Equipment	31,796 5/
Total	<u>(\$ 47,511)</u>

First-Year Savings From Reconfiguration	<u>\$ 60,105</u>
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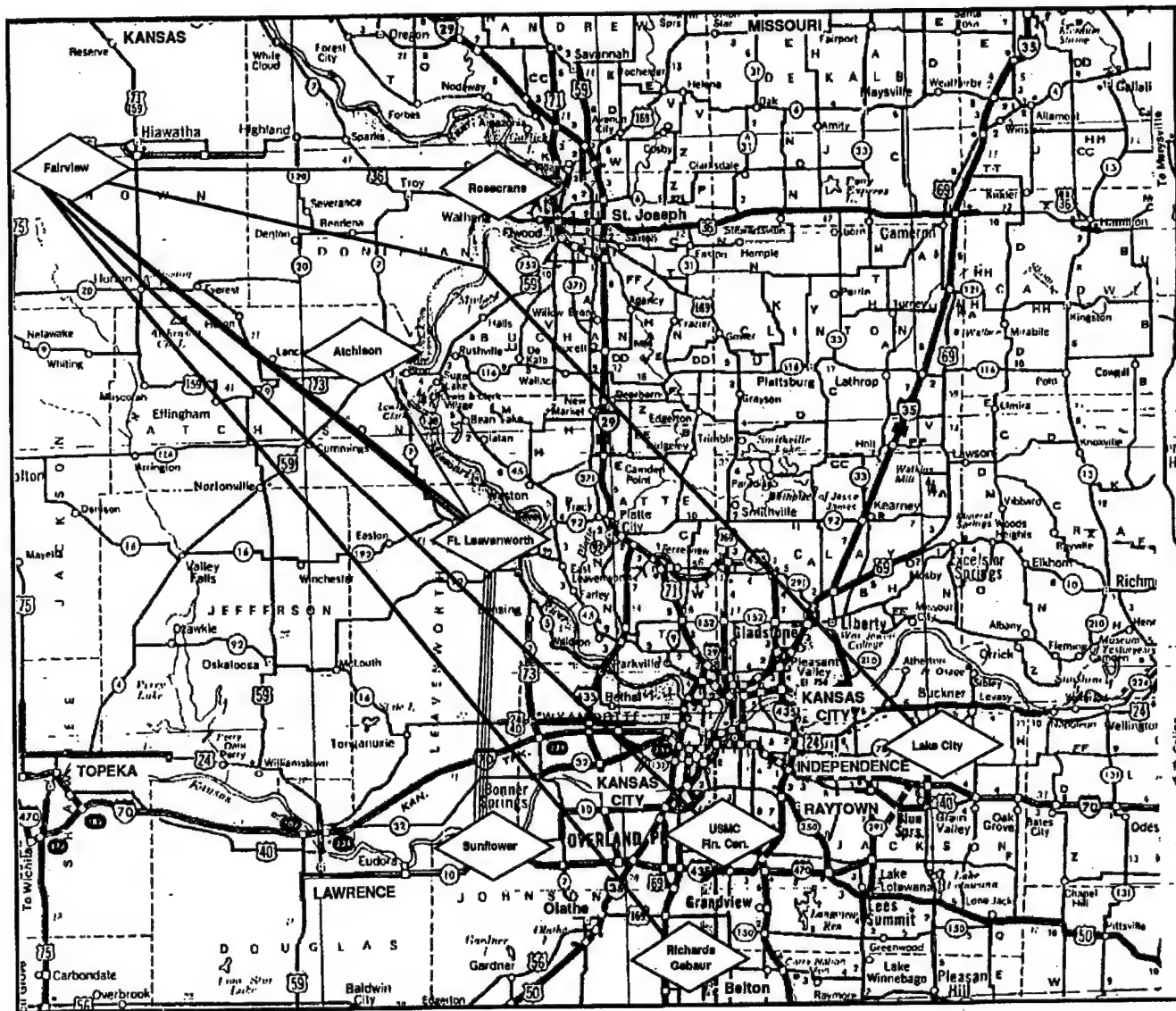
\* See footnotes on page 3 of this Enclosure

RECONFIGURATION OF AUTOMATIC VOICE NETWORK  
SINGLE-CHANNEL ACCESS CIRCUITS  
KANSAS CITY AREA (cont'd)

- 1/ Multiplexing is the technique of combining two or more independent circuits (e.g., voice, data, or video) into a composite signal through the use of equipment, such as a multiplexer or a sophisticated modem. The signal is then sent via the transmission medium to similar multiplexing equipment at the receiving end, where the process is reversed, restoring the circuits to their original state. It is more economical to use multiplexing techniques when the cost of leasing a number of independent circuits exceeds the cost of acquiring a multiplex system. This technique includes various combinations of single-channel circuits, multichannel circuits with idle capacity, or fully utilized multichannel circuits that can be consolidated into even larger multichannel circuits.
- 2/ One effective method of multiplexing is T-Carrier technology, which was introduced into the American Telephone and Telegraph system in 1962 and was first placed into DoD customer premises in 1977. The basic carrier is commonly known as a T1 link and uses digital time-division multiplexing to place 24 single-channel voice circuits onto a single 1.544 Mbps (million bits per second) digital link. Each voice channel is digitized at the rate of 64 Kbps (thousand bits per second). A T1 digital link provides end-to-end connection between customer premises and often uses copper cable as the transmission mode, but may be placed on other modes such as fiber optic cables or satellite relays. Further, by use of equipment called a bit-compression multiplexer, 44 single-channel voice circuits can be placed on a single T1 link (known as an M44 T1 link) without changing the transmission mode.
- 3/ The 41 single-channel circuits reviewed originate from these DoD activities. Those circuits are provided in Enclosure 1.
- 4/ The circuits from the Atchison and Sunflower Army Ammunition Plants are rerouted from Fairview, Kansas, to Fort Leavenworth. The cost quotes for this rerouting are shown.
- 5/ This amount represents estimated equipment costs that an engineering analysis must validate. Nonrecurring costs for equipment items may be more or less than estimated and may affect potential savings under this option.

**RECONFIGURATION OF AUTOMATIC VOICE NETWORK**  
**SINGLE-CHANNEL ACCESS CIRCUITS**  
**KANSAS CITY AREA (cont'd)**

(Proposed Reconfiguration)



NOTE: Circuit connections are routed between activities designated within diamonds.

FUTURE YEARS DEFENSE PROGRAM BUDGETARY IMPACT

Program	Element No.	Element Title	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	6-YEAR TOTAL
<u>Recurring Savings (Operation and Maintenance)</u>									
Intelligence and Communications	0303126A	Long-Haul Communications	\$ 45,700	\$ 47,369	\$ 49,049	\$ 50,744	\$ 52,466	\$ 54,255	\$ 299,583
	0303126F	Long-Haul Communications	60,528	62,737	64,964	67,210	69,493	71,858	396,790
Central Supply and Maintenance	0708021S	Logistics Support Activities-Communications	1,388	1,437	1,490	1,541	1,594	1,648	9,098
Total Recurring Savings			\$ 107,616	\$ 111,543	\$ 115,503	\$ 119,495	\$ 123,553	\$ 127,761	\$ 705,471
<u>Nonrecurring Costs (Operation and Maintenance)</u>									
Intelligence and Communications	0303126A	Long-Haul Communications	(\$ 27,189 )						(\$ 27,189 )
	0303126F	Long-Haul Communications	( 20,322 )						( 20,322 )
Total Nonrecurring Costs			( 47,511 )						( 47,511 )
Total Net Savings			\$ 60,105	\$ 111,543	\$ 115,503	\$ 119,495	\$ 123,553	\$ 127,761	\$ 657,960

Note: Savings in the first year are based on estimated costs to lease the circuits and to buy and install equipment needed for the circuit reconfigurations proposed in this report. True costs, when known, may slightly alter the savings estimates.





DEFENSE COMMUNICATIONS AGENCY

WASHINGTON D C 20305-2000

IN REPLY  
REFER TO: CEA

14 JUN 1991

MEMORANDUM FOR ASSISTANT INSPECTOR GENERAL FOR AUDITING

SUBJECT: Response to Draft Quick-Reaction Report on the Reconfiguration of Automated Voice Network Access Circuits - Kansas City Area (Project No. ORD-0043.04)

Reference: IG Audit Report, subject as above, 24 Apr 91

As requested by the reference, enclosed is DCA's response to the subject draft audit report. Should you require additional information, Mr. Philip Lavietes is available to assist you. He can be reached on 746-0863. If he is unavailable, anyone on the CEA staff can help you on 692-2172.

FOR THE DIRECTOR:

1 Enclosure a/s

  
GEORGE J. HOFFMAN  
Comptroller

## RESPONSE TO QUICK REACTION REPORT

**DODIG Recommendation:** We recommend that the Director, Defense Communications Agency, initiate action to reconfigure the 41 Army, Air Force and Defense Logistics Agency Automatic Voice Network circuits listed in Enclosure 1.

**DCA Response:** Concur in Part. DCA can and has initiated action to evaluate your reconfiguration proposal. DCA needs to inform and work with the services in determining the acceptability of bundling the circuits as the DoDIG proposes. DCA, therefore, requested input from the services to ensure any changes would continue to meet their requirements.

Based on your report, a preliminary response from the Army indicated that savings could be achieved through bundling. For the circuits analyzed by the IG, the Army provided their analysis of the savings available. This analysis is as follows:

**a. Lake City Army Ammunition Plant:**

Current monthly cost	\$3126.04
Cost if T1 bundled	<u>\$2225.69</u>
Savings per month	\$900.35
Nonrecurring Costs for conversion	\$7495.18
Amortization period = $\$7495.18 / \$900.35 = 8.3$ months	

**b. Ft. Leavenworth, Atchinson, and Sunflower**

Current monthly cost	\$7210.89
Additional T1 circuit cost	\$2540.29
Circuit from Atchinson to Ft. Leav	\$ 308.30
Circuits from Sunflower to Ft. Leav	\$1369.20
Total Monthly cost from proposed change	<u>\$4217.79</u>
Savings per month	\$2993.10
Nonrecurring Costs	\$29,400.83
Amortization period = $\$29,400.83 / \$2993.10 = 9.8$ months	

In response to the specific approach shown in the report, the Air Force commented that the audit proposal approach would have resulted in single homing of DSN access lines from a single point to a single DSN node using a single-threaded path. This approach would result in a single point of failure, isolating all of the installations in the region. This is unacceptable from an operational standpoint. However, the Air Force agrees that there are opportunities from bundling and these opportunities are already being implemented. Air Force circuits will be bundled in the AUTOVON/DCTN merger with Initial Operating Capability in 4th Quarter FY91 and Full Operational Capability in 2nd Quarter FY93. Additional bundling efforts being undertaken as a result of Defense Management Review initiatives and other actions include a recently developed DoD bundling plan, the Defense Integrated Switched Network (DISN) and the Defense Regional Telecommunications System (DRTS) which is in the study stage at this time, but has the potential to identify some cross-service/agency communications initiatives to remove duplicate communications functions between DoD Components. More detailed plans for both DISN and DRTS will be available by February 1992. Another management initiative not directly related to bundling, but that will have significant impact on management of communications is the Telecommunication Management Program which will improve the accuracy and availability of information DoD-Wide.

While there are savings available from your proposal, this analysis duplicates the effort that has already been done as part of the larger scaled AUTOVON/DCTN merger. The overall cost reduction from this effort will be CONUS-wide with appropriately larger savings than can be achieved on a site-by-site basis. As pointed out by the Army and Air Force, system-wide reductions in funding for circuits have already been identified through PBD015 as well as Defense Management Review Initiative Decisions 947 and 968. The funds have already been redistributed in DCA and its customer component budgets. Therefore, there is a strong ongoing emphasis on implementing system wide changes. The cutover date for the circuits identified in the audit is as follows:

<u>Location</u>	<u># of circuits</u>	<u>Cutover date</u>
Ft. Leavenworth	57	28 Sep 92
Richards-Gebaur	14	03 Aug 92
Atchinson AAP	1	07 Sep 92
Lake City AAP	6	27 Jul 92
Sunflower AAP	4	05 Oct 92
Rosencrans ARS	6	17 Aug 92

Assuming that implementing the audit proposal would take approximately 90-120 days leadtime, the earliest savings could begin accruing would be 1 September 91. The amortization of nonrecurring costs will result in only three months of savings accruing before the cutover plan would have resulted in similar savings from the planned DCTN/AUTOVON merger. Therefore, the cost benefit from the audit recommendations should be relatively small and dependant on no slippages occurring in the schedule. Therefore, small leadtime slippages, normal in new service provisioning, could eliminate the savings. As the AUTOVON/DCTN merger will result in comparable savings, and on a larger scale, DCA feels that, at this time, the most effective use of DCA

and service resources would be to continue with the efforts toward implementing the merger. Our emphasis will be on reducing costs as early as possible, and whenever possible, while continuing to meet mission requirements.

DCA appreciates the DoDIG's efforts in this area and acknowledges that the IG has been a catalyst in getting the ongoing efforts underway. However, at this time, the DODIGs efforts on a site-by-site basis are duplicative of our CONUS-wide efforts and are not the most effective way to identify bundling and savings opportunities. DCA feels that, at this time, the most effect use of audit resources in this area would be to monitor the on-going efforts and direct reviews towards systemic problems that would impede implementation of these initiatives. Towards this end, DCA invites the IG's project manager on this audit to participate with DCA's Internal Control Manager in a review of internal control issues that arise in preparation of DCA's Annual Statement of Assurance under the Federal Managers' Financial Integrity Act. This review would be conducted in September and October of this year as part of the development of the statement of assurance and would culminate in a better evaluation of internal controls for DCA and assist the IG in audit planning for audits that could be more useful in implementing systemic fixes to internal control problems in DCA and the services. DCA will submit the Statement of Assurance to the SECDEF on or before 15 November 91. In preparation of DCA's statement, DCA will consult with the IG and provide input for audit planning. Subsequent to issuance of the statement, a follow-on DODIG/DCA review could help identify areas that require an independent evaluation and resources not available to DCA or the other DoD component communication activities.

SUMMARY OF POTENTIAL MONETARY AND  
OTHER BENEFITS RESULTING FROM AUDIT

<u>Description of Benefit</u>	<u>Amount and/or Type of Benefit</u>
Economy and Efficiency. Communication funds put to better use.	Recurring savings of \$658,000 * (Funds put to better use)  Budget years - FY 1992 through FY 1997  Appropriation - Operation and Maintenance

\* Savings in the first year are based on estimated costs to lease the circuits and to buy and install equipment needed for the circuit reconfigurations proposed in this report. True costs, when known, may slightly alter the savings estimates.



## ACTIVITIES VISITED OR CONTACTED

### Department of the Army

Office of the Director of Information Systems for Command,  
Control, Communications and Computers, Washington, DC  
Headquarters, U.S. Army Training and Doctrine Command,  
Fort Monroe, VA  
Headquarters, U.S. Army Information Systems Command,  
Fort Huachuca, AZ  
U.S. Army Commercial Communications Office, Fort Huachuca, AZ  
Fort Leavenworth,, KS  
Atchison Army Ammunition Plant, Atchison, KS  
Lake City Army Ammunition Plant, Independence, MO  
Sunflower Army Ammunition Plant, De Soto, KS

### Department of the Navy

Office of the Director, Space and Electronic Warfare,  
Washington, DC  
Naval Computer and Telecommunications Command, Washington, DC

### Department of the Air Force

Office of the Assistant Chief of Staff, Systems for Command,  
Control, Communications and Computers, Washington, DC  
Headquarters, Air Force Communications Command,  
Scott Air Force Base, IL  
Air Force Telecommunications Certification Office,  
Scott Air Force Base, IL  
Richards Gebaur Air Reserve Station, Belton, MO  
Rosecrans Memorial Airport, Air Guard Station, St. Joseph, MO

### Marine Corps

Marine Corps Finance Center, Kansas City, MO

### Defense Agencies

Defense Communications Agency, Washington, DC  
Acquisition Management Directorate, Washington, DC  
Defense Commercial Communications Office,  
Scott Air Force Base, IL  
Telecommunications Management and Services Office,  
Scott Air Force Base, IL  
Resource Management Directorate, Washington, DC  
Defense Communications System Organization, Washington, DC  
Information Management Organization, Washington, DC

AUDIT TEAM MEMBERS

William F. Thomas, Director, Readiness and Operational Support  
Directorate  
John A. Gannon, Program Director  
Robert M. Murrell, Project Manager  
Annie L. Sellers, Team Leader  
Deborah A. Gilliam, Team Leader  
Rebecca A. Lowery, Auditor  
Patrick J. Nix, Auditor  
Clara R. Parker, Auditor  
Lamar Anderson, Auditor  
James D. Stockard, Auditor  
Suk Yo Webb, Auditor  
Mark A. Ives, Auditor

ENCLOSURE 7

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### Department of the Air Force

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Director, Defense Logistics Agency

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Senate Committee on Armed Services  
Senate Subcommittee on Communications, Committee on Commerce,  
Science, and Transportation  
Senate Committee on Governmental Affairs  
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House Subcommittee on Defense, Committee on Appropriations  
House Committee on Armed Services  
House Subcommittee on Telecommunications and Finance, Committee  
on Energy and Commerce  
House Committee on Government Operations  
House Subcommittee on Legislation and National Security,  
Committee on Government Operations

## INTERNET DOCUMENT INFORMATION FORM

**A . Report Title:** Final Quick-Reaction Report on the Reconfiguration of Automatic Voice Network Access Circuits – Kansas City Area

**B. DATE Report Downloaded From the Internet:** 07/14/00

**C. Report's Point of Contact: (Name, Organization, Address, Office Symbol, & Ph #):** OAIG-AUD (ATTN: AFTS Audit Suggestions)  
Inspector General, Department of Defense  
400 Army Navy Drive (Room 801)  
Arlington, VA 22202-2884

**D. Currently Applicable Classification Level:** Unclassified

**E. Distribution Statement A:** Approved for Public Release

**F. The foregoing information was compiled and provided by:**  
**DTIC-OCA, Initials:** \_\_VM\_\_ **Preparation Date** 07/14/00

The foregoing information should exactly correspond to the Title, Report Number, and the Date on the accompanying report document. If there are mismatches, or other questions, contact the above OCA Representative for resolution.